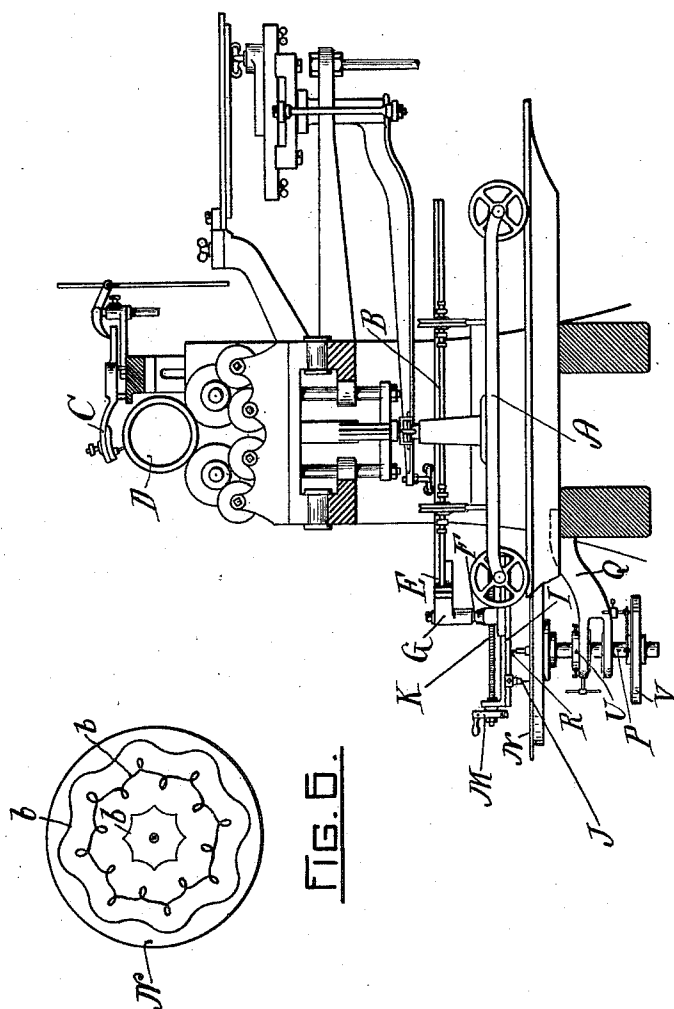


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 GEOMETRIC ATTACHMENT FOR PANTOGRAPH ENGRAVING MACHINES.
 APPLICATION FILED SEPT. 23, 1909.

1,005,973.

Patented Oct. 17, 1911.

2 SHEETS-SHEET 1.



WITNESSES

Richard C. Farrell
Peter J. Conning

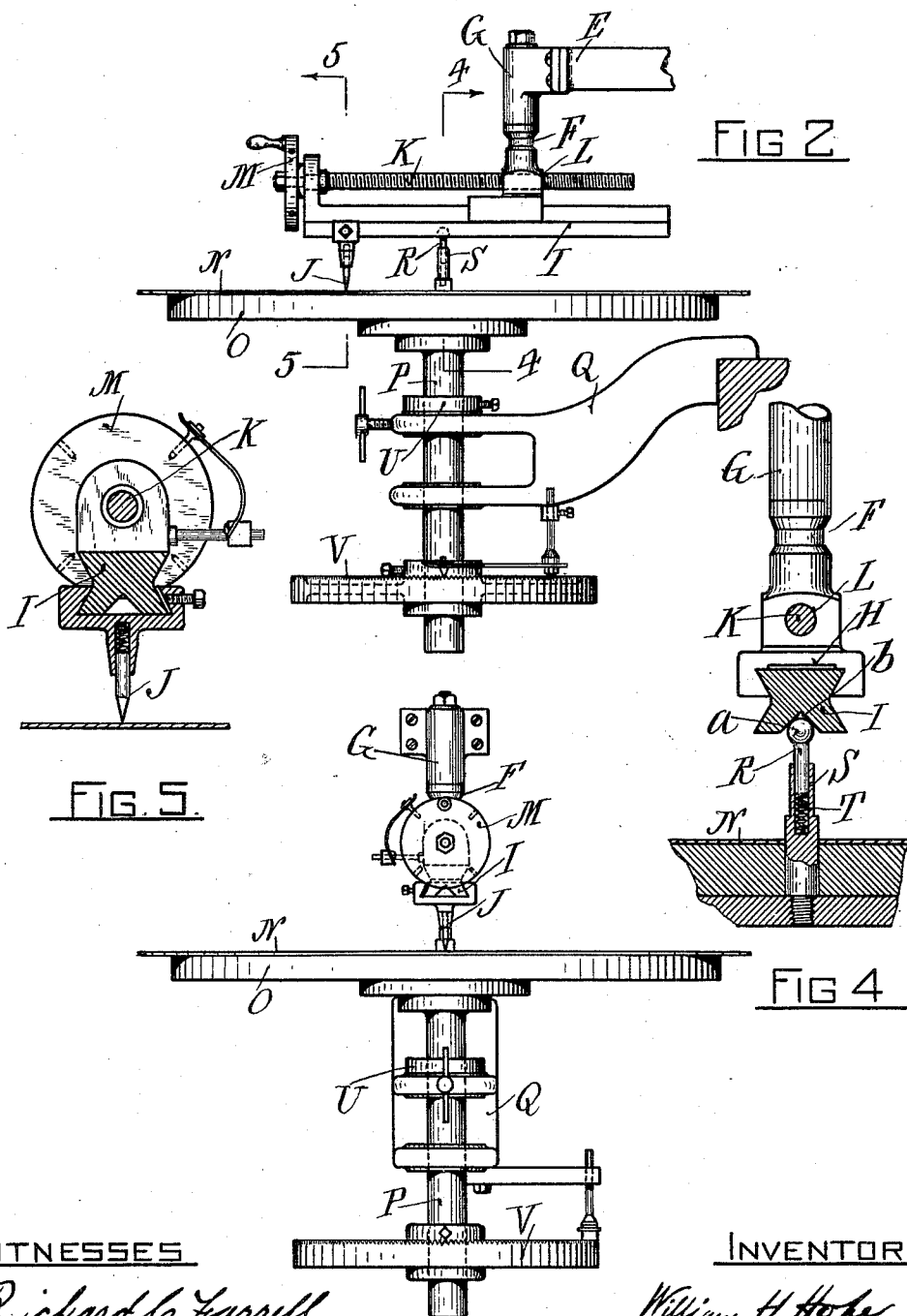
INVENTOR.

William H. Hope
per S. Schofield
ATTORNEY.

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FIG 3

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UNITED STATES PATENT OFFICE

WILLIAM H. HOPE, OF PROVIDENCE, RHODE ISLAND.

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1,005,973.

Specification of Letters Patent.

Patented Oct. 17, 1911.

Application filed September 23, 1909. Serial No. 519,286.

To all whom it may concern:

Be it known that I, WILLIAM H. HOPE, a citizen of the United States, residing at Providence, in the State of Rhode Island, have invented a new and useful Improvement in Geometric Attachments for Pantograph Engraving-Machines, of which the following is a specification.

The nature of my invention consists in an attachment for pantograph engraving machines, whereby geometrical figures may be readily made and the use of pantograph engraving machines for this purpose be greatly extended, such geometric figures having been heretofore made by means of a geometric lathe, which is a machine of comparatively great cost.

In the accompanying drawings:—Figure 1 represents a sectional side view of a pantograph engraving machine provided with my proposed geometric attachment. Fig. 2 represents an enlarged side view of the said geometric attachment. Fig. 3 represents a front view of the same. Fig. 4 represents an enlarged section taken in the line 4, 4, of Fig. 2. Fig. 5 represents an enlarged section taken in the line 5, 5, of Fig. 2. Fig. 6 represents a top view of the pattern plate.

In the accompanying drawing, A represents the lower carriage, B the upper carriage, C the diamond holder, and D the copper roll which is to be engraved, the construction and arrangement of these parts being the same as in the ordinary engraving machines for copper rolls, in which the roll D may have a pantographic movement of rotation, while the diamond holder C has the movement of translation.

The horizontal arm E to which my attachment is secured is attached to the side of the upper carriage, the said attachment consisting of the spindle F held in the bracket G, and provided at its lower end with the slide groove H, in which is held the slide bar I, the said slide bar being operated back and forth for adjusting the position of the stylus J by means of the hand operated screw K, which engages with the screw-threaded perforation L in the spindle F. The stylus J may thus be caused to move in variable arcs about the axis of the spindle F, as required. The stylus J is held in its set position by means of the index

wheel M. The pattern plate N is held upon the upper side of the disk O, the said disk being attached to the upright spindle P, held to turn in the bracket Q, which is attached to the frame of the machine, the said spindle being provided at its upper end with the spherical headed pin R, which is loosely held in the socket S, and forced upward by means of the spiral spring T, as shown in Fig. 4, the spherical head *a*, of the pin R, being held in the longitudinal groove *b*, which is made in the under side of the slide bar I. The spindle P is supported by means of the collar U, and is provided with an index wheel V, by means of which the position of the pattern plate N may be changed as desired.

When one of the tracks *b* of the pattern plate N, has been traced by the stylus J, thus forming a corresponding trace upon the waxed surface of the roll D, then by turning the index wheel M to cause the outward or inward movement of the stylus, a parallel line will be traced upon the surface of the roll, and by moving the index wheel V, the lines may be traced crossing each other to form a geometric pattern.

I claim as my invention:

1. In a pantograph engraving machine the combination of an upper and a lower carriage with an adjustable slide bar pivoted to the upper carriage for swinging movement in a horizontal plane, a stylus held upon said bar, a fulcrum pin for the said bar and a pattern plate for guiding the movement of the stylus.

2. In a pantograph engraving machine the combination of an upper and lower carriage, with an adjustable slide bar pivoted to the upper carriage for swinging movement in a horizontal plane, a stylus held upon said bar, an upright shaft, a fulcrum pin at the upper end of the said shaft for the swinging movement of the slide bar, a holding disk secured to the said upright shaft, a pattern plate held upon the said disk, and an index wheel for adjusting the position of the pattern plate relatively to the stylus.

WILLIAM H. HOPE.

Witnesses:

SOCRATES SCHOLFIELD,
WALLACE C. PARSONS.